

REMARKS

Applicant respectfully requests reconsideration of the present application in view of the foregoing amendments and in view of the reasons that follow.

I. Introduction

Claims 1, 4, 5, 7-17, 19-24, 26, 28-29 and 31-36 are pending in this application. Claims 1, 7, 10, 13, 17, 24 and 28 are amended. Claims 6, 18 and 27 have been cancelled and their limitations have been added to claims 1, 13 and 24, respectively. No new matter was added.

II. The Rejections Should Be Withdrawn

A. §102(e) Rejection Should Be Withdrawn

Claims 1, 4, 5, 7-11, 13-17, 19-22, 24, 26, 28, 29, and 32-35 were rejected under §102(e) as being anticipated by Barker (US 2005/0155490). This rejection is respectfully traversed.

Claims 6, 18 and 27 have not been rejected under §102(e) as being anticipated by Barker. Independent claims 1, 13 and 24 have been amended to include the limitations of claims 6, 18 and 27, respectively. Applicant respectfully submits that the rejections under §102(e) have been rendered moot.

B. §103(a) Rejection Should Be Withdrawn

Claims 6, 12, 18, 23, 27, 31, and 36 were rejected under §103(a) as being unpatentable over Barker (US 2005/0155490) in view of Cable (US 2003/0077498). This rejection is respectfully traversed, as it applies to currently amended claims 1, 13 and 24.

1. Claims 1 and 13

Claims 1 and 13 now recite the limitations of original claims 6 and 18, respectively. Specifically, claims 1 and 13 now recite that the separator plate contains three ceramic layers.

The Office Action asserts that one of ordinary skill in the art would be motivated by Cable to add a third ceramic layer 122 of Cable to the device of Barker. Applicant respectfully disagrees.

Barker teaches that the continuous intermediate conductive layer 26 forms a gas barrier between the two ceramic layers 22 and 24 (see paragraph [0073], line 18 of Barker). Therefore, one of ordinary skill in the art would understand that there is no need to add an additional ceramic gas barrier 122 of Cable between the two ceramic layers 22 and 24 because the conductive layer 26 forms a sufficient gas barrier.

Cable teaches that the third ceramic layer 122 forms a gas separator plate between the upper and lower ceramic layers (see paragraph [0040] of Cable). The ceramic gas separator 122 is provided in the device of Cable because the conductive strips between the ceramic layers of Cable are discontinuous and do not form a continuous gas barrier. Thus, the third ceramic gas separator layer 122 is needed in the device of Cable to act as a gas barrier to prevent the gases from flowing through the interconnect.

In contrast, one of ordinary skill in the art would not be motivated to import the gas separator ceramic layer 122 of Cable into the device of Barker because the conductive layer 26 of Barker already functions as a gas separator. Thus, there is no reason to complicate and increase the cost of the device of Barker by adding another ceramic gas separator layer 122 of Cable because it would duplicate the function of the conductive layer 26 of Barker without achieving an improved function for the device.

2. Claim 24

Claim 24 recites filling the vias after sintering the ceramic layers. Neither Barker nor Cable teach this step.

The Office Action indicates that Barker does not teach this claimed step, but asserts that paragraph [0076] of Cable teaches this step. Applicant respectfully disagrees.

Paragraph [0076] of Cable does not teach filling the vias after sintering the ceramic layers. In contrast, paragraph [0077] of Cable suggests that the vias are filled before sintering or firing the ceramic layers. Specifically, paragraph [0077] states:

These openings are then filled with a paste by screen printing (or other techniques known in the art). After co-firing, the particles in the paste sinter together to form a relatively dense plug. [emphasis added]

Therefore, paragraph [0077] suggests that the vias are filled with the paste before sintering. The subsequent sintering (co-firing) step then causes the particles in the paste in the vias to sinter together to form a plug.

One of ordinary skill in the art would be lead away from filling the vias after sintering by the teachings of Cable and Barker. Cable teaches that filling the vias before sintering causes the particles in the paste in the vias to sinter together to form a dense plug. Likewise, Barker teaches that filling the vias before sintering allows the formation of the plugs 28 and the continuous conductive layer 26 in a single step. This step also melts the conductive silver into a continuous conductive path (see paragraph [0073] of Barker.

Therefore, one of ordinary skill in the art would fill the vias before sintering in order to obtain a denser, sintered plug, as taught by Cable, and to force the conductive material into the vias while forming a continuous conductive path and a gas separator of a desired thickness, as taught by Barker. Thus, there is no teaching or suggestion in Cable and Barker to fill the vias after sintering.

III. Conclusion

Applicant believes that the present application is now in condition for allowance. Favorable reconsideration of the application as amended is respectfully requested. The Examiner is invited to contact the undersigned by telephone if it is felt that a telephone interview would advance the prosecution of the present application.

The Commissioner is hereby authorized to charge any additional fees which may be required regarding this application under 37 C.F.R. §§ 1.16-1.17, or credit any overpayment, to Deposit Account No. 19-0741. Should no proper payment be enclosed herewith, as by a check or credit card payment form being in the wrong amount, unsigned, post-dated, otherwise improper or informal or even entirely missing, the Commissioner is authorized to charge the unpaid amount to Deposit Account No. 19-0741. If any extensions of time are needed for timely acceptance of papers submitted herewith, Applicant hereby petitions for such extension under 37 C.F.R. §1.136 and authorizes payment of any such extensions fees to Deposit Account No. 19-0741.

Respectfully submitted,

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